

APPENDIX A

1 (Currently Amended). A virtual photonics switching system,
~~the system~~ comprising:

multiple photonics ~~cross-connect~~ network elements
comprising photonics network nodes and photonics network
switches;

optical fibers connecting the photonics network elements;
and

an O-UNI server optically connected to at least one of the
photonics network elements including:

at least one memory for storing information pertaining
to ~~said~~ photonics network elements nodes registered with the O-
UNI server;

a communication circuit for receiving a connectivity
request from a first registered photonics network node for a
connection with a second registered photonics network node; and

connection logic for determining compatibility of the
first and second registered photonics network nodes; and;

the said communications circuit providing instructions
to the photonics network elements switches upon verifying
compatibility of the first and second registered photonics
network nodes to search for an end-to-end wavelength path and
establish the connection between the first registered photonics

network node and the second registered photonic network node.

2 (Original). The system of claim 1, wherein the O-UNI server further comprises a web menu for providing a user with a selection of available services.

3 (Original). The system of claim 1, wherein the connection logic determines technology compatibility.

4 (Currently Amended). The system of claim 1, wherein the ~~multiple photonics cross connect elements~~ photonics network nodes include photonics network service nodes, and photonics network access nodes, ~~and photonic switches~~.

5 (Currently Amended). The system of claim 4, wherein the photonics network service nodes comprise core routers or video servers.

6 (Currently Amended). The system of claim 4, wherein the photonics network access nodes comprise multiplexers or edge routers.

7 (Currently Amended). The system of claim 1, wherein the O-

UNI server further comprises fault management tools for determining when an error has occurred in establishing a the connection.

8 (Currently Amended). The system of claim 1, wherein the photonics network elements, the optical fibers, and the O-UNI server comprise a protocol agnostic private network, provided that communicating photonics network nodes use an identical communication protocol.

9 (Currently Amended). The system of claim 1, wherein the O-UNI server further ~~comprising~~ comprises registration tools for registering photonics network nodes and collecting information including number of ports, wavelengths per port, and bandwidth per wavelength.

10 (Currently Amended). A method for establishing automatic service connectivity in a network between multiple photonics network elements, ~~each of said network elements utilizing routing and distribution protocols to discover its neighbors and establish a topology and~~ comprising photonics network nodes and photonics network switches connected by optical fibers ~~connecting the network elements~~, each optical fiber carrying

multiple wavelengths of signals, wherein the photronics network elements optically communicate with an O-UNI server, the method comprising:

~~storing information pertaining to each of said network elements at the server;~~

registering photronics network ~~elements~~ nodes by collecting information about each photronics network ~~element~~ node;

storing information pertaining to each registered photronics network node at the O-UNI server;

receiving a connectivity request from a first registered photronics network node for a connection with a second registered photronics network node;

determining compatibility of the first and second registered photronics network nodes; and

instructing photronics network ~~elements~~ switches upon verifying compatibility of the first and second registered photronics network nodes to search for an end-to-end wavelength path and establish a the connection between the first registered photronics network node and the second registered photronics network node.

11 (Original). The method of claim 10, further comprising providing the O-UNI server with a web menu for providing a user

with a selection of available services.

12 (Original). The method of claim 10, wherein the step of determining compatibility comprises determining technology compatibility.

13 (Currently Amended). The method of claim 10, further comprising using photronics network service nodes, and photronics network access nodes, ~~and photonic switches~~ as the ~~multiple~~ photronics ~~cross-connect~~ network nodes.

14 (Currently Amended). The method of claim 13, further comprising providing ~~comprise~~ core routers or video servers as photronics network service nodes.

15 (Currently Amended). The method of claim 13, further comprising providing multiplexers or edge routers as photronics network access nodes.

16 (Currently Amended). The method of claim 10, further comprising performing fault management for determining when an error has occurred in establishing a the connection.

17 (Currently Amended). The method of claim 10, further comprising forming a protocol agnostic private network provided that communicating photronics network nodes use an identical communication protocol.

18 (Currently Amended). The method of claim 10, wherein the step of registering photronics network elements nodes comprises collecting information including number of ports, wavelengths per port, and bandwidth per wavelength.

19 (Currently Amended). An O-UNI server adaptable for use in a virtual photronics switching system having a plurality of photronics network elements comprising photronics network nodes and photronics network switches, the O-UNI server comprising:

at least one memory for storing information pertaining to a plurality of each photronics network elements node registered with the O-UNI server;

a communication circuit for receiving a connectivity request from a first registered photronics network node for a connection with a second registered photronics network node; and

connection logic for determining compatibility of the first and second registered photronics network nodes; and

the said communications circuit providing instructions to

~~the~~ photronics network ~~elements~~ switches upon verifying compatibility of the first and second registered photronics network nodes to search for an end-to-end wavelength path and establish the connection between the first registered photronics network node and the second registered photronics network node.

20 (Original). The O-UNI server of claim 19, further comprising a web menu for providing a user with a selection of available services.

21 (Original). The O-UNI server of claim 19, wherein the connection logic determines technology compatibility.

22 (Currently Amended). The O-UNI server of claim 19, further comprising fault management tools for determining when an error has occurred in establishing a the connection.

23 (Currently Amended). The O-UNI server of claim 19, further comprising registration tools for registering photronics network nodes and collecting information including number of ports, wavelengths per port, and bandwidth per wavelength.

24 (Original). The O-UNI server of claim 19, further comprising

address management tools for address resolution and assignment.

25 (Original). The O-UNI server of claim 19, further comprising accounting management tools for managing data associated with service usage.

26 (Currently Amended). The O-UNI server of claim 19, further comprising security management tools for managing allocation and authentication of access passwords of the photronics network nodes.